Claims

1. A laser apparatus for material treatment, which comprises a source of laser radiation (S) providing pulsed laser radiation (3) and a variable deflecting device (10), which directs said laser radiation (3) into the material (5) at different, selectable locations, in order to generate optical breakthroughs, characterized by a pulse picking device (15) that changes selected laser pulses (SP) of the pulsed laser radiation (3) such, with regard to at least one optical parameter, that the changed laser pulses (SP) cannot generate optical breakthroughs.

2. The laser apparatus according to claim 1, characterized in that the pulse picking device (15) changes non-sequential laser pulses, which are equidistant in time according to a selection frequency.

3. The laser apparatus as claimed in any one of the above Claims, characterized in that the pulse picking device (15) changes the laser pulses at least with regard to one of the following parameters: phase, amplitude, polarization, propagation direction, or beam profile.

4. The laser apparatus as claimed in any one of the above Claims, characterized in that the pulse picking device (15) comprises an acousto-optic modulator (23), a Pockels' cell, a fiber-optics switching element and/or a chopper wheel.

5. The laser apparatus as claimed in any one of the above Claims, characterized by a control device (18) which synchronously controls the pulse picking device (15) and the deflecting device (10).

6. The laser apparatus as claimed in Claims 2 and 5, characterized in that the control device (18) controls the pulse picking device (15) and the deflecting device (10) so as to generate the optical breakthroughs along a predetermined path and, if an actual deflection speed of the deflecting device (10) approaches a maximum deflection speed, the control device (18) increases the selection frequency and, in accordance therewith, decreases the actual deflection speed.

7. A method of material treatment by means of laser radiation, wherein pulsed laser radiation is generated and is variably deflected into the material so as to generate optical breakthroughs, characterized in that selected laser pulses of the pulsed laser radiation are

changed such, with regard to an optical parameter, that the changed laser pulses no longer generate optical breakthroughs.

8. The method as claimed in Claim 7, characterized in that non-sequential laser pulses, which are equidistant in time, are changed according to a selection frequency.

9. The method as claimed in any one of Claims 7 or 8, characterized in that the laser pulses are changed at least with regard to one of the following parameters: phase, amplitude, polarization, propagation direction, or beam profile.

10. The method as claimed in any one of Claims 7 to 9, characterized in that the deflection of the laser radiation and the change in the selected laser pulses are effected in a synchronized manner.

11. The method as claimed in any one of Claims 7 to 10, characterized in that the deflection of the laser radiation and the picking of the laser pulses cause optical breakthroughs to form along a predetermined path in the material (5), wherein, if an actual deflection speed of said deflection thus comes close to a maximum deflection speed, the selection frequency is increased and, in accordance therewith, the actual deflection speed is decreased.